

SEQUENCE LISTING

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<160> NUMBER OF SEQ ID NOS: 30

<210> SEQ ID NO 1

<211> LENGTH: 254

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<212> TYPE: PRT

<213>ORGANISM: Homo sapiens

<400> SEQUENCE: 1

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Met Ala Val Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Ala
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35

Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly Arg Glu Gly Glu Ala
35 40 45

40

Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser Phe Glu Ile Asp Asp
50 55 60

Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80
 5 Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu Tyr Arg Val Arg Ile
 100 105 110
 10 Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu Ala Gly Gly Tyr Val
 115 120 125
 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 15 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Val Ser
 145 150 155 160
 Val Val Thr His Pro Gly Gly Cys Arg Gly His Glu Val Glu Asp Val
 165 170 175
 20 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Gln Pro Pro Thr Thr
 180 185 190
 25 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
 195 200 205
 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
 210 215 220
 30 Lys Tyr Trp His Ile Ile Leu Gly Gly Ala Val Leu Leu Thr Ala Leu
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 Arg Pro Ala Ala Pro Gly Pro Ala Pro Pro Pro Gln Glu Ala
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 40 <213> ORGANISM: Mus musculus
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 20 25 30
 50 Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly Arg Glu Ala Glu Gly
 35 40 45
 Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser Phe Glu Leu Gly Asp
 50 55 60
 55 Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80
 Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 60

Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu Tyr Arg Val Arg Val
 100 105 110
 5 Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu Ala Gly Gly His Val
 115 120 125
 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 10 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Leu Ser
 145 150 155 160
 Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser Glu Val Glu Asp Glu
 165 170 175
 15 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Arg Pro Pro Ser Thr
 180 185 190
 20 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
 195 200 205
 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
 210 215 220
 25 Lys Tyr Trp His Leu Ile Leu Gly Gly Ala Val Leu Leu Thr Ala Leu
 225 230 235 240
 Arg Pro Ala Ala Pro Gly Pro Ala Pro Ala Pro Thr Glu Ala
 245 250
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 <212> TYPE: PRT
 35 <213>ORGANISM: Homo sapiens
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 20 25 30
 45 Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly Arg Glu Gly Glu Ala
 35 40 45
 Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser Phe Glu Ile Asp Asp
 50 55 60
 Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80
 55 Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu Tyr Arg Val Arg Ile
 100 105 110
 60 Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu Ala Gly Gly Tyr Val

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      115              120              125
Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
  130              135              140
5  Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Val Ser
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Val Val Thr His Pro Gly Gly Cys Arg Gly His Glu Val Glu Asp Val
10              165              170              175
Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Gln Pro Pro Thr Thr
              180              185              190
15 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
              195              200              205
Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
20              210              215              220
Lys Tyr Trp Met Tyr Ile Ile Pro Val Val Leu Phe Leu Met Met Ser
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Gly Gly Gly Ser Gly Arg
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    <213> ORGANISM: Mus musculus
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40 Met Val Ala Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Val
              20              25              30
Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly Arg Glu Ala Glu Gly
45              35              40              45
Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser Phe Glu Leu Gly Asp
  50              55              60
Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu Trp Asn Gln Gln Asp
50              65              70              75              80
Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
              85              90              95
55 Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu Tyr Arg Val Arg Val
              100              105              110
Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu Ala Gly Gly His Val
115              120              125
60

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Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 5 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Leu Ser
 145 150 155 160
 Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser Glu Val Glu Asp Glu
 165 170 175
 10 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Arg Pro Pro Ser Thr
 180 185 190
 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
 195 200 205
 15 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
 210 215 220
 Lys Tyr Trp Met Tyr Ile Ile Pro Val Val Leu Phe Leu Met Met Ser
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 30 <213>ORGANISM: Homo sapiens
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 <222>LOCATION: (47). . . (811)
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 40 gggcgaggcc tgtggcacgg tggggctgct gctggagcac tcatttgaga tcgatgacag 240
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 tgggggctgc cggggccatg aggtggagga cgtggacctg gagctgttca acacctcggt 600
 gcagctgcag ccgcccacca cagccccagg ccctgagacg gcggccttca ttgagcgctt 660
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    cctcatgatg tcaggagcgc cagacgccgg gggccagggt gggggtgggg gtgggggtgg 900
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    caccaccccc cgccgccag cactctacct ggactgcggt gctacgaggg cctgcgggcc 1740
    tttgctgtgt gccaccctcc ctgtaagtct atttaaaaac atcgacgata cattgaaatg 1800
    tgtgaacggt ttgaaaagct acagcttcca gcagccaaaa gcaactgttg ttttgcaag 1860
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25 <212> TYPE: DNA
    <213>ORGANISM: Mus musculus
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    <221>NAME/KEY:CDS
    <222>LOCATION: (38). . . (802)
30 <400> SEQUENCE: 6

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35    cggctgccgg gtcggggcct ccgcgcgtgg gaccggggcc gatggccgtg aagctgaggg 180
    ctgtggcacc gtggctttgc tgctggagca ttcatttgag ctcggtgatg gagccaactt 240

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gtcttccttc gtcccagcgt gctccctggt ggagtgcac ctttcggacc agctgacctt 480
5 gcacgtggat gtggctggca acgtgggtggg cctgtctgtg gtgggtgtacc ctgggggctg 540
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10 accagcgcca acggaggcct aagtaggac acagtccct gccgccttg ccctctgcc 840
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    <212> TYPE: DNA
    <213> ORGANISM: Homo sapiens
    <220> FEATURE:
20 <221> NAME/KEY: CDS
    <222> LOCATION: (47) . . . (835)

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 <212> TYPE: DNA
 25 <213> ORGANISM: Mus musculus
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5 ccggggctcc gaggtggaag atgaggacct ggagctgttc aatacatctg tgcagctgcg 600
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10 cagagccagc ccaagaagga gttcctgtcc ccacatttcc ctattgcatg aatatggaag 900
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<210> SEQ ID NO 9
<211> LENGTH: 227
25 <212> TYPE: PRT
    <213> ORGANISM: Homo sapiens

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35 Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly Arg Glu Gly Glu Ala
    35          40          45
Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser Phe Glu Ile Asp Asp

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Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu Trp Asn Gln Gln Asp
65              70              75              80
5  Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
      85              90              95
Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu Tyr Arg Val Arg Ile
10 100              105
Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu Ala Gly Gly Tyr Val
115              120              125
15 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
130              135              140
Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Val Ser
20 145              150              155
Val Val Thr His Pro Gly Gly Cys Arg Gly His Glu Val Glu Asp Val
165              170              175
25 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Gln Pro Pro Thr Thr
180              185              190
Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
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30 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
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Lys Tyr Trp
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    <213> ORGANISM: Mus musculus
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50 Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly Arg Glu Ala Glu Gly
35              40              45
Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser Phe Glu Leu Gly Asp
50              55              60
55 Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu Trp Asn Gln Gln Asp
65              70              75              80
Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
85              90              95
60

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Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu Tyr Arg Val Arg Val
 100 105 110
 5 Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu Ala Gly Gly His Val
 115 120 125
 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 10 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Leu Ser
 145 150 155 160
 Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser Glu Val Glu Asp Glu
 165 170 175
 15 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Arg Pro Pro Ser Thr
 180 185 190
 20 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
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 25 Lys Tyr Trp
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 30 <212> TYPE: DNA
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5 <210> SEQ ID NO 12
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 <213> ORGANISM: Mus musculus
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 <221> NAME/KEY: CDS
 10 <222> LOCATION: (38).. . (721)
 <400> SEQUENCE: 12
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 ccagaagcga ggcttgctgc tctggaacca gcaggatggc accctgtcgg caacacagcg 300
 acagctcagt gaggaggagc gtggccgact ccgggatgtg gctgctgtca atggcctcta 360
 cagggtccgg gtcccaggc ggcctgggac acttgatggt tcagaagctg gcggccatgt 420
 20 gtcttccttc gtcccagcgt gtcacctggt ggagtcgcac cttcggacc agctgacctt 480
 gcacgtgat gtggctggca acgtgggtgg cctgtctgtg gtggtgtacc ctgggggctg 540
 ccggggctcc gaggtggaag atgaggacct ggagctgttc aatacatctg tgcagctgcg 600
 gcctcccagc actgctccag gcccagagac tgcagccttc attgagcgcc tggagatgga 660
 gcaggcccag aaggccaaga acccacagga gcagaagtct ttctttgcca aatactggtg 720

25

a

30 <210> SEQ ID NO 13
 <211> LENGTH: 225
 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens

<400> SEQUENCE: 13
 35 Met Ala Ala Ala Ser Ala Gly Ala Thr Arg Leu Leu Leu Leu Leu Leu
 1 5 10 15
 Met Ala Val Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Ala
 20 25 30
 40 Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly Arg Glu Gly Glu Ala
 35 40 45
 Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser Phe Glu Ile Asp Asp
 50 55 60
 45 Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80

Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 5 Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu Tyr Arg Val Arg Ile
 100 105 110
 Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu Ala Gly Gly Tyr Val
 115 120 125
 10 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Val Ser
 145 150 155 160
 15 Val Val Thr His Pro Gly Gly Cys Arg Gly His Glu Val Glu Asp Val
 165 170 175
 20 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Gln Pro Pro Thr Thr
 180 185 190
 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
 195 200 205
 25 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
 210 215 220
 Lys
 30 225
 <210> SEQ ID NO 14
 <211> LENGTH: 225
 <212> TYPE: PRT
 35 <213>ORGANISM: Mus musculus
 <400> SEQUENCE: 14
 Met Val Ala Ala Gly Ala Gly Val Thr Arg Leu Leu Val Leu Leu Leu
 1 5 10 15
 Met Val Ala Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Val
 20 25 30
 45 Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly Arg Glu Ala Glu Gly
 35 40 45
 Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser Phe Glu Leu Gly Asp
 50 55 60
 50 Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80
 Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu Tyr Arg Val Arg Val
 100 105 110
 60 Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu Ala Gly Gly His Val

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      115              120              125
Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
  130              135              140
5  Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Leu Ser
  145              150              155              160
10 Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser Glu Val Glu Asp Glu
      165              170              175
    Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Arg Pro Pro Ser Thr
      180              185              190
15 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
      195              200              205
    Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser Phe Phe Ala
      210              215              220
20 Lys
    225
25 <210> SEQ ID NO 15
    <211> LENGTH: 724
    <212> TYPE: DNA
    <213> ORGANISM: Homo sapiens
    <220> FEATURE:
    <221> NAME/KEY: CDS
30 <222> LOCATION: (47) . . . (724)
    <400> SEQUENCE: 15
    ggctcttggc tcacagccgt cccttcgctg gtgggaagaa gccgagatgg cggcagccag      60
35 cgctggggca acccggtgc tcctgctctt gctgatggcg gtagcagcgc ccagtcgagc      120
    ccggggcagc ggctgccggg ccgggactgg tgcgcgaggg gctggggcgg aaggtcgaga      180
    gggcgaggcc tgtggcacgg tggggctgct gctggagcac tcatttgaga tcgatgacag      240
    tgccaacttc cggaagcggg gctcactgct ctggaaccag caggatggta ccttgtccct      300
    gtcacagcgg cagctcagcg aggaggagcg gggccgactc .cgggatgtgg cagccctgaa      360
40 tggcctgtac cgggtccgga tccaaggcg acccggggcc ctggatggcc tggaagctgg      420
    tggctatgtc tcctcctttg tccctgcgtg ctccctggtg gagtcgcacc tgtcggacca      480
    gctgaccctg cacgtggatg tggccggcaa cgtggtgggc gtgtcgggtg tgacgcaccc      540
    tgggggctgc cggggccatg aggtggagga cgtggacctg gagctgttca acacctcgggt      600
    gcagctgcag ccgcccacca cagcccagg ccctgagacg gcggccttca ttgagcgcct      660
45 ggagatggaa caggcccaga aggccaagaa ccccaggag cagaagtcct tcttcgccaa      720
    atga

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5 <210> SEQ ID NO 16
 <211> LENGTH: 715
 <212> TYPE: DNA
 <213> ORGANISM: Mus musculus
 <220> FEATURE:
 <221> NAME/KEY: CDS
 <222> LOCATION: (38) . . . (715)

10 <400> SEQUENCE: 16
 gggctgtatg gctctcgggt tttctcaacg ctcccgtatg gtggccgcgg gtgccggggt 60
 gaccgggctg ctagtgctct tgctgatggt agccgcggct cctagcagag cccgaggcag 120
 cggctgccgg gtcggggcct ccgcgcgtgg gaccggggcc gatggccgtg aagctgaggg 180
 ctgtggcacc gtggctttgc tgctggagca ttcatTTgag ctcggtgatg gagccaactt 240
 15 ccagaagcga ggcttgctgc tctggaacca gcaggatggc accctgtcgg caacacagcg 300
 acagctcagt gaggaggagc gtggccgact ccgggatgtg gctgctgtca atggcctcta 360
 cagggtcggg gtcccagagg gccctgggac acttgatggt tcagaagctg gcggccatgt 420
 gtcttccttc gtcccagcgt gctccctggt ggagtcgcac ctttcggacc agctgacctt 480
 gcacgtggat gtggctggca acgtgggtgg cctgtctgtg gtggtgtacc ctgggggctg 540
 20 ccggggctcc gaggtggaag atgaggacct ggagctgttc aatacatctg tgcagctgcg 600
 gcctcccagc actgctccag gcccgcagac tgcagccttc attgagcgcc tggagatgga 660
 gcaggcccag aaggccaaga acccacagga gcagaagtct ttctttgcca aatga

25 <210> SEQ ID NO 17
 <211> LENGTH: 221
 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens

30 <400> SEQUENCE: 17
 Met Ala Ala Ala Ser Ala Gly Ala Thr Arg Leu Leu Leu Leu Leu Leu
 1 5 10 15

35 Met Ala Val Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Ala
 20 25 30

Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly Arg Glu Gly Glu Ala
 35 40 45

40 Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser Phe Glu Ile Asp Asp
 50 55 60

45 Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80

Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95

Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu Tyr Arg Val Arg Ile
 100 105 110
 5 Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu Ala Gly Gly Tyr Val
 115 125
 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 10 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Val Ser
 145 150 155 160
 Val Val Thr His Pro Gly Gly Cys Arg Gly His Glu Val Glu Asp Val
 165 170 175
 15 Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Gln Pro Pro Thr Thr
 180 185 190
 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
 195 200 205
 20 Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser
 210 215 220
 25
 <210> SEQ ID NO 18
 <211> LENGTH: 221
 <212> TYPE: PRT
 <213> ORGANISM: Mus musculus
 30
 <400> SEQUENCE: 18
 Met Val Ala Ala Gly Ala Gly Val Thr Arg Leu Leu Val Leu Leu Leu
 1 5 10 15
 35 Met Val Ala Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys Arg Val
 20 25 30
 40 Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly Arg Glu Ala Glu Gly
 35 40 45
 Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser Phe Glu Leu Gly Asp
 50 55 60
 45 Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu Trp Asn Gln Gln Asp
 65 70 75 80
 Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser Glu Glu Glu Arg Gly
 85 90 95
 50 Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu Tyr Arg Val Arg Val
 100 105 110
 55 Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu Ala Gly Gly His Val
 115 120 125
 Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu Ser His Leu Ser Asp
 130 135 140
 60 Gln Leu Thr Leu His Val Asp Val Ala Gly Asn Val Val Gly Leu Ser


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145              150              155              160
Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser Glu Val Glu Asp Glu
5 165              170              175
Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu Arg Pro Pro Ser Thr
180              185              190
10 Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu Arg Leu Glu Met Glu
195              200              205
Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln Lys Ser
210              215              220

15 <210> SEQ ID NO 19
    <211> LENGTH: 712
    <212> TYPE: DNA
    <213> ORGANISM: Homo sapiens
    <220> FEATURE:
20 <221> NAME/KEY: CDS
    <222> LOCATION: (47) . . . (712)

    <400> SEQUENCE: 19
25 ggctcttggc tcacagccgt cccttcgctg gtgggaagaa gccgagatgg cggcagccag 60
   cgctggggca acccggtgc tctgctctt gctgatggcg gtagcagcgc ccagtcgagc 120
   ccggggcagc ggctgccggg ccgggactgg tgcgcgaggg gctggggcgg aaggtcgaga 180
   gggcgaggcc tgtggcacgg tggggctgct gctggagcac tcatttgaga tcgatgacag 240
   tgccaacttc cggaagcggg gctcactgct ctggaaccag caggatggta cttgtccct 300
30 gtcacagcgg cagctcagcg aggaggagcg gggccgactc cgggatgtgg cagccctgaa 360
   tggcctgtac cgggtccgga tccaaggcg acccggggcc ctggatggcc tggaagctgg 420
   tggctatgtc tcctcctttg tcctcgctg ctccctggtg gagtgcgacc tgtcggacca 480
   gctgaccctg cacgtggatg tggccggcaa cgtggtgggc gtgtcggtgg tgacgcaccc 540
   tgggggctgc cggggccatg aggtggagga cgtggacctg gagctgttca acacctcggt 600
35 gcagctgcag ccgcccacca cagcccagg ccctgagacg gcggccttca ttgagcgct 660
   ggagatggaa caggcccaga aggccaagaa ccccaggag cagaagtcct ga

    <210> SEQ ID NO 20
    <211> LENGTH: 703
    <212> TYPE: DNA
    <213> ORGANISM: Mus musculus
    <220> FEATURE:
40 <221> NAME/KEY: CDS
    <222> LOCATION: (38) . . . (703)

    <400> SEQUENCE: 20
45 gggctgtatg gctctcggtt tttctcaacg ctcccgtatg gtggccgagg gtgccggggg 60

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gaccgggctg ctagtgctct tgctgatggg agccggggct cctagcagag cccgaggcag 120
 cggctgccgg gtcggggcct ccgcgcgtgg gaccggggcc gatggccgtg aagctgaggg 180
 ctgtggcacc gtggctttgc tgctggagca ttcatttgag ctcggtgatg gagccaactt 240
 ccagaagcga ggcttgctgc tctggaacca gcaggatggc accctgtcgg caacacagcg 300
 5 acagctcagt gaggaggagc gtggccgact ccgggatgtg gctgctgtca atggcctcta 360
 caggggccgg gtcccagggc ggcctgggac acttgatggg tcagaagctg gcggccatgt 420
 gtcttccttc gtcccagcgt gctccctggg ggagtcgcac ctttcggacc agctgacctt 480
 gcacgtggat gtggctggca acgtgggtgg cctgtctgtg gtgggtgtacc ctgggggctg 540
 cgggggctcc gaggtggaag atgaggacct ggagctgttc aatacatctg tgcagctgcg 600
 10 gcctcccagc actgctccag gccccgagac tgcagccttc attgagcgcc tggagatgga 660
 gcaggcccag aaggccaaga acccacagga gcagaagtct tga

<210> SEQ ID NO 21
 <211> LENGTH: 227
 15 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens

<400> SEQUENCE: 21
 20 Ser Gly Cys Arg Ala Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly
 1 5 10 15
 Arg Glu Gly Glu Ala Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser
 20 25 30
 25 Phe Glu Ile Asp Asp Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu
 35 40 45
 30 Trp Asn Gln Gln Asp Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser
 50 55 60
 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu
 65 70 75 80
 35 Tyr Arg Val Arg Ile Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu
 85 90 95
 Ala Gly Gly Tyr Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 40 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Val Ser Val Val Thr His Pro Gly Gly Cys Arg Gly His
 130 135 140
 45 Glu Val Glu Asp Val Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160

Gln Pro Pro Thr Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 5 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 Lys Ser Phe Phe Ala Lys Tyr Trp His Ile Ile Leu Gly Gly Ala Val
 195 200 205
 10 Leu Leu Thr Ala Leu Arg Pro Ala Ala Pro Gly Pro Ala Pro Pro Pro
 210 215 220
 Gln Glu Ala
 225
 15
 <210> SEQ ID NO 22
 <211> LENGTH: 227
 <212> TYPE: PRT
 <213> ORGANISM: Mus musculus
 20
 <400> SEQUENCE: 22
 Ser Gly Cys Arg Val Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly
 1 5 10 15
 25 Arg Glu Ala Glu Gly Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser
 20 25 30
 Phe Glu Leu Gly Asp Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu
 35 40 45
 Trp Asn Gln Gln Asp Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser
 50 55 60
 35 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu
 65 70 75 80
 Tyr Arg Val Arg Val Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu
 85 90 95
 40 Ala Gly Gly His Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Leu Ser Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser
 130 135 140
 50 Glu Val Glu Asp Glu Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 Arg Pro Pro Ser Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 55 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 Lys Ser Phe Phe Ala Lys Tyr Trp His Leu Ile Leu Gly Gly Ala Val
 195 200 205
 60

Leu Leu Thr Ala Leu Arg Pro Ala Ala Pro Gly Pro Ala Pro Ala Pro
 210 215 220

5 Thr Glu Ala
 225

<210> SEQ ID NO 23
 <211> LENGTH: 235
 10 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens
 <400> SEQUENCE: 23

15 Ser Gly Cys Arg Ala Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly
 1 5 10 15

Arg Glu Gly Glu Ala Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser
 20 20 25 30

Phe Glu Ile Asp Asp Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu
 35 40 45

25 Trp Asn Gln Gln Asp Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser
 50 55 60

Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu
 65 70 75 80

30 Tyr Arg Val Arg Ile Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu
 85 90 95

Ala Gly Gly Tyr Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110

35 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125

Val Val Gly Val Ser Val Val Thr His Pro Gly Gly Cys Arg Gly His
 40 130 135 140

Glu Val Glu Asp Val Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160

45 Gln Pro Pro Thr Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175

Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190

50 Lys Ser Phe Phe Ala Lys Tyr Trp Met Tyr Ile Ile Pro Val Val Leu
 195 200 205

55 Phe Leu Met Met Ser Gly Ala Pro Asp Ala Gly Gly Gln Gly Gly Gly
 210 215 220

Gly Gly Gly Gly Gly Gly Gly Gly Ser Gly Arg
 225 230 235

60

5 <210> SEQ ID NO 24
 <211> LENGTH: 231
 <212> TYPE: PRT
 <213> ORGANISM: Mus musculus
 <400> SEQUENCE: 24

10 Ser Gly Cys Arg Val Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly
 1 5 10 15
 Arg Glu Ala Glu Gly Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser
 20 25 30
 15 Phe Glu Leu Gly Asp Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu
 35 40 45
 Trp Asn Gln Gln Asp Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser
 50 55 60
 20 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu
 65 70 75 80
 Tyr Arg Val Arg Val Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu
 85 90 95
 25 Ala Gly Gly His Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Leu Ser Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser
 130 135 140
 35 Glu Val Glu Asp Glu Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 Arg Pro Pro Ser Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 40 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 Lys Ser Phe Phe Ala Lys Tyr Trp Met Tyr Ile Ile Pro Val Val Leu
 195 200 205
 Phe Leu Met Met Ser Gly Ala Pro Asp Ala Gly Gly Gln Gly Gly Gly
 210 215 220
 50 Gly Gly Gly Gly Ser Ser Arg
 225 230

55 <210> SEQ ID NO 25
 <211> LENGTH: 200
 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens
 <400> SEQUENCE: 25

60 Ser Gly Cys Arg Ala Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly

1 5 10 15
 Arg Glu Gly Glu Ala Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser
 20 25 30
 5 Phe Glu Ile Asp Asp Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu
 35 40 45
 10 Trp Asn Gln Gln Asp Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser
 50 55 60
 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu
 65 70 75 80
 15 Tyr Arg Val Arg Ile Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu
 85 90 95
 Ala Gly Gly Tyr Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 20 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Val Ser Val Val Thr His Pro Gly Gly Cys Arg Gly His
 130 135 140
 25 Glu Val Glu Asp Val Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 30 Gln Pro Pro Thr Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 35 Lys Ser Phe Phe Ala Lys Tyr Trp
 195 200
 40 <210> SEQ ID NO 26
 <211> LENGTH: 200
 <212> TYPE: PRT
 <213> ORGANISM: Mus musculus
 45 <400> SEQUENCE: 26
 Ser Gly Cys Arg Val Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly
 1 5 10 15
 50 Arg Glu Ala Glu Gly Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser
 20 25 30
 Phe Glu Leu Gly Asp Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu
 35 40 45
 55 Trp Asn Gln Gln Asp Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser
 50 55 60
 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu
 65 70 75 80

Tyr Arg Val Arg Val Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu
 85 90 95
 5 Ala Gly Gly His Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 10 Val Val Gly Leu Ser Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser
 130 135 140
 Glu Val Glu Asp Glu Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 15 Arg Pro Pro Ser Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 20 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 Lys Ser Phe Phe Ala Lys Tyr Trp
 195 200
 25 <210> SEQ ID NO 27
 <211> LENGTH: 198
 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens
 30 <400> SEQUENCE: 27
 Ser Gly Cys Arg Ala Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly
 1 5 10 15
 35 Arg Glu Gly Glu Ala Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser
 20 25 30
 Phe Glu Ile Asp Asp Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu
 35 40 45
 40 Trp Asn Gln Gln Asp Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser
 50 55 60
 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu
 65 70 75 80
 Tyr Arg Val Arg Ile Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu
 85 90 95
 50 Ala Gly Gly Tyr Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 55 Val Val Gly Val Ser Val Val Thr His Pro Gly Gly Cys Arg Gly His
 130 135 140
 60 Glu Val Glu Asp Val Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160

Gln Pro Pro Thr Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 5 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 Lys Ser Phe Phe Ala Lys
 195
 10 <210> SEQ ID NO 28
 <211> LENGTH: 198
 <212> TYPE: PRT
 <213> ORGANISM: Mus musculus
 15 <400> SEQUENCE: 28
 Ser Gly Cys Arg Val Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly
 1 5 10 15
 20 Arg Glu Ala Glu Gly Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser
 20 25 30
 25 Phe Glu Leu Gly Asp Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu
 35 40 45
 Trp Asn Gln Gln Asp Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser
 50 55 60
 30 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu
 65 70 75 80
 Tyr Arg Val Arg Val Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu
 85 90 95
 35 Ala Gly Gly His Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 40 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Leu Ser Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser
 130 135 140
 45 Glu Val Glu Asp Glu Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 Arg Pro Pro Ser Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 50 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 55 Lys Ser Phe Phe Ala Lys
 195
 60 <210> SEQ ID NO 29
 <211> LENGTH: 194
 <212> TYPE: PRT
 <213> ORGANISM: Homo sapiens

<400> SEQUENCE: 29

5 Ser Gly Cys Arg Ala Gly Thr Gly Ala Arg Gly Ala Gly Ala Glu Gly
 1 5 10 15
 Arg Glu Gly Glu Ala Cys Gly Thr Val Gly Leu Leu Leu Glu His Ser
 20 25 30
 10 Phe Glu Ile Asp Asp Ser Ala Asn Phe Arg Lys Arg Gly Ser Leu Leu
 35 40 45
 Trp Asn Gln Gln Asp Gly Thr Leu Ser Leu Ser Gln Arg Gln Leu Ser
 50 55 60
 15 Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Leu Asn Gly Leu
 65 70 75 80
 Tyr Arg Val Arg Ile Pro Arg Arg Pro Gly Ala Leu Asp Gly Leu Glu
 85 90 95
 Ala Gly Gly Tyr Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 25 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Val Ser Val Val Thr His Pro Gly Gly Cys Arg Gly His
 130 135 140
 30 Glu Val Glu Asp Val Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 Gln Pro Pro Thr Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 40 Lys Ser

<210> SEQ ID NO 30

<211> LENGTH: 194

<212> TYPE: PRT

<213> ORGANISM: Mus musculus

<400> SEQUENCE: 30

50 Ser Gly Cys Arg Val Gly Ala Ser Ala Arg Gly Thr Gly Ala Asp Gly
 1 5 10 15
 Arg Glu Ala Glu Gly Cys Gly Thr Val Ala Leu Leu Leu Glu His Ser
 20 25 30
 55 Phe Glu Leu Gly Asp Gly Ala Asn Phe Gln Lys Arg Gly Leu Leu Leu
 35 40 45
 Trp Asn Gln Gln Asp Gly Thr Leu Ser Ala Thr Gln Arg Gln Leu Ser
 50 55 60

Glu Glu Glu Arg Gly Arg Leu Arg Asp Val Ala Ala Val Asn Gly Leu
 65 70 75 80
 5 Tyr Arg Val Arg Val Pro Arg Arg Pro Gly Thr Leu Asp Gly Ser Glu
 85 90 95
 Ala Gly Gly His Val Ser Ser Phe Val Pro Ala Cys Ser Leu Val Glu
 100 105 110
 10 Ser His Leu Ser Asp Gln Leu Thr Leu His Val Asp Val Ala Gly Asn
 115 120 125
 Val Val Gly Leu Ser Val Val Val Tyr Pro Gly Gly Cys Arg Gly Ser
 130 135 140
 15 Glu Val Glu Asp Glu Asp Leu Glu Leu Phe Asn Thr Ser Val Gln Leu
 145 150 155 160
 20 Arg Pro Pro Ser Thr Ala Pro Gly Pro Glu Thr Ala Ala Phe Ile Glu
 165 170 175
 Arg Leu Glu Met Glu Gln Ala Gln Lys Ala Lys Asn Pro Gln Glu Gln
 180 185 190
 25 Lys Ser

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